

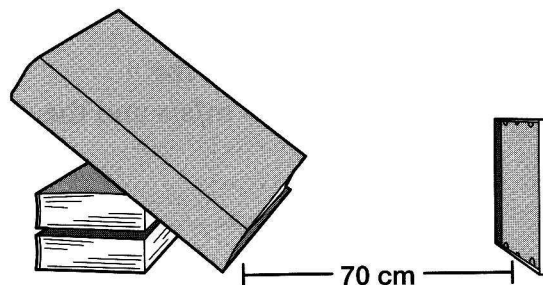
**LAB Group Work The Rolling Tennis Ball**
**Question** How are mass and inertia related?

**Procedure**

1. Place 2 paperback books on top of one another on the floor. Set a large textbook on top of the books. One end of the textbook should touch the floor to form a ramp.
2. Place the CD case 70 centimeters from the end of the ramp. Use your meter stick to measure the distance. Stand the CD case up on its side.
3. Place the tennis ball at the top of the ramp. Let the ball go so it rolls down the ramp. If the ball does not hit the CD case, roll the ball again. Observe what happens when the ball hits the CD case.

**Materials**

- 3 paperback books
- tennis ball
- meter stick
- 2 large textbooks
- empty CD case



4. Replace the CD case with a paperback book. Stand the book up. Let the ball roll down the ramp again. Observe what happens when the ball hits the paperback.
5. Replace the paperback book with a large textbook. Stand the book up. Again let the ball roll down the ramp. Observe what happens when the ball hits the textbook.

**Analysis**

1. Which object has the most mass—the CD case, the paperback book, or the textbook?  
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2. Which object moved the least when it was hit? Which object moved the most?  
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3. How does an object's mass affect its inertia? \_\_\_\_\_